

WHAT IS CLAIMED IS:

1. A method for recording a video session at a client, comprising:

determining the processing capacity of the client;

5 establishing a recording interval in response to the determined processing capacity, the recording interval indicating a time between a first recording time and a second recording time;

recording a first video frame at the first recording time, the first video frame including first video data;

10 recording a second video frame at the second recording time, the second video frame including second video data; and

15 generating a video sub-frame comprising the second video data that is different from the first video data.

2. The method of Claim 1, further comprising communicating the first video frame and the video sub-frame to a video server coupled to the client.

20 3. The method of Claim 1, wherein the video sub-frame comprises a first video sub-frame and the recording interval further indicating the time between the second recording time and a third recording time, the method further comprising:

recording a third video frame at the third recording time, the third video frame including third video data; and

30 generating a second video sub-frame comprising the third video data that is different from the second video data.

4. The method of Claim 1, wherein the first video frame comprises a first key frame and the video sub-frame comprises a first video sub-frame, the method further comprising:

- 5 determining the network capacity of a communication path that couples the client to a video server;
- establishing a key frame interval in response to the determined network capacity, the key frame interval indicating a time between the first recording time
- 10 associated with the first key frame and a third recording time associated with a second key frame;
- recording a third video frame at the third recording time, the third video frame comprising the second key frame and including third video data;
- 15 recording a fourth video frame at a fourth recording time, the fourth video frame including fourth video data;
- generating a second video sub-frame comprising the fourth video data that is different from the third video data; and
- 20 communicating the first key frame, the first video sub-frame, the second key frame, and the second video sub-frame to the video server.

5. The method of Claim 1, wherein:

- 25 the first video data comprises a plurality of video pixels arranged in a plurality of rows and a plurality of columns; and
- the second video data comprises a corresponding plurality of video pixels arranged in a corresponding
- 30 plurality of rows and a corresponding plurality of columns.

6. The method of Claim 5, wherein the step of generating the video sub-frame comprises:

sequentially comparing each row of video pixels associated with the second video data with a

5 corresponding row of video pixels associated with the first video data until identifying a row of video pixels where the second video data is different from the first video data; and

sequentially comparing each column of video pixels
10 associated with the second video data with a corresponding column of video pixels associated with the first video data until identifying a column of video pixels where the second video data is different from the first video data.

15

7. The method of Claim 6, wherein:

the step of sequentially comparing each row of video pixels is initiated from the first row of video pixels and performed until identifying a row of video pixels

20 where the second video data is different from the first video data, the identified row defining a first boundary of the video sub-frame;

the step of sequentially comparing each row of video pixels is simultaneously initiated from the last row of

25 video pixels and performed until identifying a row of video pixels where the second video data is different from the first video data, the identified row defining a second boundary of the video sub-frame;

the step of sequentially comparing each column of video pixels is initiated from the first column of video pixels and performed until identifying a column of video pixels where the second video data is different from the
5 first video data, the identified column defining a third boundary of the video sub-frame; and

the step of sequentially comparing each column of video pixels is simultaneously initiated from the last column of video pixels and performed until identifying a
10 column of video pixels where the second video data is different from the first video data, the identified column defining a fourth boundary of the video sub-frame.

8. The method of Claim 1, further comprising
15 determining the available processing resources of the client and wherein the step of generating a video sub-frame comprises generating a video sub-frame if the available processing resources of the client exceeds a predetermined threshold.

20

9. The method of Claim 3, wherein:

the step of recording the first video frame comprises storing the first video frame in a queue at the client;

25 the step of recording the second video frame comprises storing the second video frame in the queue;

the step of recording the third video frame comprises storing the third video frame in the queue;

the method further comprising:

30 determining the available memory resources of the client;

30 25 20 15 10 5 0

removing a selected one of the second video frame or the third video frame from the queue if the available memory resources of the client fall below a predetermined threshold.

5

10. The method of Claim 3, wherein the step of recording the first video frame comprises storing the first video frame in a queue at the client, and the step of recording the second video frame comprises storing the 10 second video frame in the queue, the method further comprising:

removing the first video frame from the queue upon generating the first video sub-frame; and

15 removing the second video frame from the queue upon generating the second video sub-frame.

20 11. The method of Claim 4, further comprising compressing the first key frame, the first video sub-frame, the second key frame, and the second video sub-frame prior to the step of communicating.

12. The method of Claim 2, wherein the step of communicating comprises:

25 communicating a first video segment comprising the first video data; and

communicating a second video segment comprising the video sub-frame.

30

13. The method of Claim 1, wherein:
the first video data comprises the video activity of
the client for a first interval of time; and
the second video data comprises the video activity
of the client for a second interval of time.

14. A client for recording a video session, comprising:

a memory operable to:

5 store a first video frame recorded at a first recording time, the first video frame including first video data; and

store a second video frame recorded at a second recording time, the second video frame including second video data;

10 and

a processor coupled to the memory and operable to:

determine the processing capacity of the client;

15 establish a recording interval in response to the determined processing capacity, the recording interval indicating a time between the first recording time and the second recording time; and

20 generate a video sub-frame comprising the second video data that is different from the first video data.

15. The client of Claim 14, wherein the processor is further operable to communicate the first video frame and the video sub-frame to a video server coupled to the 25 client.

16. The client of Claim 14, wherein the video sub-frame comprises a first video sub-frame and the recording interval rate further indicating the time between the 30 second recording time and a third recording time, the processor further operable to:

record a third video frame at the third recording time, the third video frame including third video data; and

5 generate a second video sub-frame comprising the third video data that is different from the second video data.

17. The client of Claim 14, wherein the first video frame comprises a first key frame and the video sub-frame 10 comprises a first video sub-frame, the processor further operable to:

determine the network capacity of a communication path that couples the client to a video server;

15 establish a key frame interval in response to the determined network capacity, the key frame interval indicating a time between the first recording time associated with the first key frame and a third recording time associated with a second key frame;

20 record a third video frame at the third recording time, the third video frame comprising the second key frame and including third video data;

record a fourth video frame at a fourth recording time, the fourth video frame including fourth video data;

25 generate a second video sub-frame comprising the fourth video data that is different from the third video data; and

communicate the first key frame, the first video sub-frame, the second key frame, and the second video sub-frame to the video server.

18. The client of Claim 14, wherein:

the first video data comprises a plurality of video pixels arranged in a plurality of rows and a plurality of columns; and

5 the second video data comprises a corresponding plurality of video pixels arranged in a corresponding plurality of rows and a corresponding plurality of columns.

10 19. The client of Claim 18, wherein the processor is further operable to:

sequentially compare each row of video pixels associated with the second video data with a corresponding row of video pixels associated with the 15 first video data until identifying a row of video pixels where the second video data is different from the first video data; and

20 sequentially compare each column of video pixels associated with the second video data with a corresponding column of video pixels associated with the first video data until identifying a column of video pixels where the second video data is different from the first video data.

25 20. The client of Claim 19, wherein the processor is further operable to:

initiate comparing each row of video pixels from the first row of video pixels and to continue the comparing until identifying a row of video pixels where the second 30 video data is different from the first video data, the identified row defining a first boundary of the video sub-frame;

simultaneously initiate comparing each row of video pixels from the last row of video pixels and to continue the comparing until identifying a row of video pixels where the second video data is different from the first
5 video data, the identified row defining a second boundary of the video sub-frame;

initiate comparing each column of video pixels from the first column of video pixels and to continue the comparing until identifying a column of video pixels
10 where the second video data is different from the first video data, the identified column defining a third boundary of the video sub-frame; and

simultaneously initiate comparing each column of video pixels from the last column of video pixels and to
15 continue the comparing until identifying a column of video pixels where the second video data is different from the first video data, the identified column defining a fourth boundary of the video sub-frame.

20 21. The client of Claim 16, wherein the processor is further operable to:

determine the available processing resources of the client; and

25 generate a video sub-frame if the available processing resources of the client exceeds a predetermined threshold.

22. The client of Claim 16, wherein:
the memory is further operable to:

30 store the first video frame in a queue at the client;

store the second video frame in the queue; and

store the third video frame in the queue;
and
the processor is further operable to:
determine the available memory resources of the
5 client; and
remove a selected one of the second video frame or
the third video frame from the queue if the available
memory resources of the client does not exceed a
predetermined threshold.

10

23. The client of Claim 16, wherein:
the memory is further operable to store the first
video frame and the second video frame in a queue at the
client; and

15

the processor is further operable to remove the
first video frame from the queue upon generating the
first video sub-frame, and to remove the second video
frame from the queue upon generating the second video
sub-frame.

20

24. The client of Claim 17, wherein the processor
is further operable to compress the first key frame, the
first video sub-frame, the second key frame, and the
second video sub-frame prior to communicating.

25

25. The client of Claim 15, wherein the processor
is further operable to:

communicate a first video segment comprising the
first video data; and

30

communicate a second video segment comprising the
video sub-frame.

26. The client of Claim 14, wherein:
the first video data comprises the video activity of
the client for a first interval of time; and
the second video data comprises the video activity
5 of the client for a second interval of time.

27. A system for recording a video session, comprising:

a video server operable to communicate a start record command; and

5 a client coupled to the video server using a communication path and operable to:

determine the processing capacity of the client;

establish a recording interval in response to the determined processing capacity, the recording interval 10 indicating a time between a first recording time and a second recording time;

record a first video frame at the first recording time in response to the start record command, the first video frame including first video data;

15 record a second video frame at the second recording time, the second video frame including second video data; and

generate a video sub-frame comprising the second video data that is different from the first video data.

20

28. The system of Claim 27, wherein the client is further operable to communicate the first video frame and the video sub-frame to the video server.

25 29. The system of Claim 27, wherein the video sub-frame comprises a first video sub-frame and the recording interval further indicating the time between the second recording time and a third recording time, the client further operable to:

30 record a third video frame at the third recording time, the third video frame including third video data; and

0
1
2
3
4
5
6
7
8
9

generate a second video sub-frame comprising the third video data that is different from the second video data.

5 30. The system of Claim 27, wherein the first video frame comprises a first key frame and the video sub-frame comprises a first video sub-frame, the client further operable to:

10 determine the network capacity of the communication path;

15 establish a key frame interval in response to the determined network capacity, the key frame interval indicating a time between the first recording time associated with the first key frame and a third recording time associated with a second key frame;

record a third video frame at the third recording time, the third video frame comprising the second key frame and including third video data;

20 record a fourth video frame at a fourth recording time, the fourth video frame including fourth video data;

generate a second video sub-frame comprising the fourth video data that is different from the third video data; and

25 communicate the first key frame, the first video sub-frame, the second key frame, and the second video sub-frame to the video server.

31. The system of Claim 27, wherein:

30 the first video data comprises a plurality of video pixels arranged in a plurality of rows and a plurality of columns; and

the second video data comprises a corresponding plurality of video pixels arranged in a corresponding plurality of rows and a corresponding plurality of columns.

5

32. The system of Claim 31, wherein the client is further operable to:

sequentially compare each row of video pixels associated with the second video data with a corresponding row of video pixels associated with the first video data until identifying a row of video pixels where the second video data is different from the first video data; and

sequentially compare each column of video pixels associated with the second video data with a corresponding column of video pixels associated with the first video data until identifying a column of video pixels where the second video data is different from the first video data.

20

33. The system of Claim 32, wherein the client is further operable to:

initiate comparing each row of video pixels from the first row of video pixels and to continue the comparing until identifying a row of video pixels where the second video data is different from the first video data, the identified row defining a first boundary of the video sub-frame;

30

simultaneously initiate comparing each row of video pixels from the last row of video pixels and to continue the comparing until identifying a row of video pixels where the second video data is different from the first

5 video data, the identified row defining a second boundary of the video sub-frame;

initiate comparing each column of video pixels from the first column of video pixels and to continue the comparing until identifying a column of video pixels

10 where the second video data is different from the first video data, the identified column defining a third boundary of the video sub-frame; and

simultaneously initiate comparing each column of video pixels from the last column of video pixels and to continue the comparing until identifying a column of video pixels where the second video data is different from the first video data, the identified column defining a fourth boundary of the video sub-frame.

20 34. The system of Claim 27, wherein the client is further operable to:

determine the available processing resources of the client; and

25 35. The system of Claim 29, wherein the client is further operable to:

generate a video sub-frame if the available processing resources of the client exceeds a predetermined threshold.

30 35. The system of Claim 29, wherein the client is further operable to:

store the first video frame in a queue at the client;

store the second video frame in the queue;

store the third video frame in the queue;
determine the available memory resources of the client; and

remove a selected one of the second video frame or
5 the third video frame from the queue if the available
memory resources of the client does not exceed a
predetermined threshold.

36. The system of Claim 29, wherein the client is
10 further operable to:

store the first video frame and the second video frame in a queue;

remove the first video frame from the queue upon generating the first video sub-frame; and

15 remove the second video frame from the queue upon generating the second video sub-frame.

37. The system of Claim 30, wherein the client is
further operable to compress the first key frame, the
20 first video sub-frame, the second key frame, and the second video sub-frame prior to communicating.

38. The system of Claim 28, wherein the client is
further operable to:

25 communicate a first video segment comprising the first video data; and

communicate a second video segment comprising the video sub-frame.

39. The system of Claim 27, wherein:
the first video data comprises the video activity of
the client for a first interval of time; and
the second video data comprises the video activity
5 of the client for a second interval of time.